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Preferential Connection and Integration of Electricity Generators Using Renewable Energy Sources: Critical Assessment of the EU Rules

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A Introduction

In the 1990s, the European Union (EU) decided to gradually liberalise electricity markets. Liberalisation was followed by the adoption of the climate and energy package.[1] The closely linked policy objectives of electricity liberalisation and climate change mitigation, however, can be conflicting, as commitments to a low-carbon economy are often implemented at the cost of market-based trade in both conventional and green electricity.

Besides promotion of renewable energy (RE) on the production side, the EU has introduced measures which allow EU Member States to provide preferential treatment to RE-sourced electricity over conventional power generators at the stages of connection, access to the grid and dispatch of electricity on the grid.[2] On one hand, grid-related incentives have the potential to facilitate the connection and integration of RE electricity generators into electricity systems. They may eliminate grid-related barriers, such as long waits to obtain authorisation for grid connection and discriminatory and non-transparent access to the grid procedures adopted to connect and integrate conventional power plants.[3]

[1] Under the climate change and energy package, the European Union undertook the commitment to reduce greenhouse gas emissions by 20 per cent from 1990 levels, to raise the share of energy consumption produced from renewable resources to 20 per cent and to improve energy efficiency by 20 per cent. The EU's present goals include increasing the share of renewable energy by 27 per cent by 2030, in order to contribute towards climate change mitigation. See European Commission, *Climate Change and Energy Policies*, http://ec.europa.eu/clima/policies/package/index_en.htm (accessed 10 October 2014).

[2] Article 16(2) and 16(3) of the RES Directive.

[3] See Á. R. Paraja, *Priority Access for Renewable Energy into the Grid: The Experience of a Regulator* (2010), www.energy-regulators.eu/portal/page/portal/FSR_

On the other hand, grid-related incentives may undermine the economics of conventional power technologies to the extent that they are no longer profitable.[4] Grid-related incentives may also hinder cross-border trade in conventional and RE electricity by creating loop flows that limit cross-border transmission capacity,[5] or potentially induce the shutdown of certain thermal power plants, the start-up costs of which can be carbon dioxide (CO_2)-intensive.[6]

This chapter addresses part of the technological bias problem that occurs in the technologically diverse electricity sector. It suggests that electricity-generating installations should be treated based on their ability to supply electricity. To do so, the chapter explains the different ways in which electricity-generating technologies are treated at the levels of production of electricity and grid operation. It further provides an overview of problems related to the implementation of rules giving priority to renewables, and an overview of the EU's rules tackling the issue of discrimination against electricity-generating installations at the stages of connection, access and dispatch of electricity on the grid.

B Overview of the Priority Rules under EU Law

Preferential treatment of RE-sourced electricity dates back to 1996, when the EU adopted the first legislative package of liberalisation of gas and electricity markets, which included Directive 96/92/EC concerning common rules for the internal market in electricity (1996 Electricity Directive). Articles 8(1) and 8(2) of the 1996 Electricity Directive placed the transmission system operators in charge of dispatching the generating installations based on objective criteria, to be published and applied

HOME/ENERGY/Policy_Events/Workshops/2010/EU_Energy_Law_Policy/MRP.pdf (accessed 10 November 2014).

[4] G. Wynn, 'Europe's wind and solar grid challenge', *Reuters* (2013), www.businessspectator.com.au/article/2013/9/19/renewable-energy/europes-wind-and-solar-grid-challenge (accessed 10 October 2014).

[5] European Wind Energy Association, *EWEA Position Paper on Priority Dispatch of Wind Power: A Paper from the EWEA Large-Scale Integration Working Group*, 2013, p. 13, www.ewea.org/fileadmin/files/library/publications/position-papers/EWEA_position_on_priority_dispatch.pdf (accessed 10 October 2015).

[6] O. Rosnes, *Subsidies to Renewable Energy in Inflexible Power Markets*, Norwegian University of Life Sciences, www.ifn.se/BinaryLoader.axd?OwnerID=dfe1cad2-2ef5-4894-b64e-14648d3949c4&OwnerType=0&PropertyName=File1&FileName=Rosnes%20Subsidies%20to%20Renewables%20in%20Inflexible%20Power%20Markets.pdf (accessed 10 October 2014).

in a non-discriminatory manner. Article 8(3) of the 1996 Electricity Directive, in particular, allowed Member States to require the system operator to prioritise generating installations using renewable energy sources (RES) or waste or producing combined heat and power.

In 2001, priority rights to RE-sourced electricity-generating installations were extended with the introduction of Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (2001 RES Directive). Notably, Article 7(1) of the 2001 RES Directive introduced the requirement for Member States to take the necessary measures to ensure that transmission system operators (TSOs) and distribution system operators (DSOs) in their territory guarantee the transmission and distribution of electricity produced from RES. In addition, the 2001 RES Directive: (i) allowed Member States to give electricity produced from RES priority access to the grid system and (ii) required TSOs to give priority to generating installations using RES when dispatching generating installations, insofar as was permitted by the operation of the national electricity system.

Grid-related incentives were expected to help new technologies and players enter the electricity markets. They were also intended to address market failures, such as the dominance of vertically integrated utilities, inadequate infrastructure and the burdensome authorisation procedures for planning, building and operation of grids that existed at Member State level.[7] To further advance those objectives, in Directive 2009/28/EC on the promotion of the use of energy from renewable energy sources (RES Directive), which amended and subsequently repealed the 2001 RES Directive, the EU revised and amended its preferential treatment of RE-sourced electricity-generating installations.

I Priority Rules in the RES Directive and Their Implementation

The RES Directive maintains the 2001 RES Directive requirement for Member States to ensure that TSOs and DSOs in their territories guarantee

[7] See further European Commission (2007), 'Communication from the Commission to the Council and the European Parliament. Renewable energy road map. Renewable energies in the 21st century: building a more sustainable future' (COM/2006/0848 final); European Commission (2006), 'Communication from the Commission to the Council and the European Parliament Green Paper follow-up action report on progress in renewable electricity' (COM/2006/0849 final); European Commission (2013), 'Communication from the Commission. Delivering the internal electricity market and making the most of public intervention' (C(2013) 7243 final).

the transmission and distribution of electricity produced from RES.[8] It also leaves intact EU Member States' obligation to 'ensure that when dispatching electricity generating installations, [TSOs would] give priority to generating installations using renewable energy sources' insofar as is permitted by the electricity system.[9] Besides the above, the RES Directive of 2009 strengthens the priority regime for RE electricity generators in several ways when compared to the RES Directive of 2001.[10]

First, in light of the fact that EU electricity systems accommodate the further development of electricity production from RES, the RES Directive stipulates a requirement for Member States to 'take the appropriate steps to develop transmission and distribution grid infrastructure, intelligent networks, storage facilities and the electricity system, in order to allow the secure operation of [the system]'.[11] This general duty explicitly imposes a requirement to further develop the systems not only for conventional electricity-generation needs, but also for electricity generation from renewables, which features such challenges as forecasting and dependence on climatic conditions. However, the RES Directive neither provides any guidelines on the implementation of the rule nor explains the meaning of 'appropriate steps' to be taken to develop such infrastructure in order to accommodate a growing share of RES electricity production.

Second, the RES Directive imposes an obligation on EU Member States to 'provide for either priority or guaranteed access to the grid-system'. According to Recital 61 of the RES Directive, (i) *priority access* requires Member States to provide an assurance to connected generators of electricity from RES that they will be able to sell and transmit the electricity generated from RES in accordance with the connection procedures at all times, whenever the source becomes available and (ii) *guaranteed access* requires Member States to provide an assurance that electricity will obtain access to the grid, allowing the use of a maximum amount of electricity from RE electricity generators connected to the grid.[12] Similar to the 2001 RES Directive, it makes the implementation of priority or guaranteed access rules subject to requirements relating to

[8] Article 16.2(a) of the RES Directive.
[9] Article 16.2(c) of the RES Directive.
[10] Article 16 of the RES Directive stipulates and clarifies, among other things, a number of rights related to connection and access to the electricity grids that are not covered by this chapter (as this chapter's intention is more to discuss the rationale of the regime than particular aspects of it).
[11] Article 16(1) RES Directive.
[12] Note that priority access and guaranteed access are similar measures: guaranteed access applies to RE electricity directly sold on the market, while priority access applies to

maintenance of the grid's reliability and safety, and therefore provides some flexibility to Member States regarding implementation of the rule.

Third, besides priority access and dispatch of electricity, the RES Directive also (i) introduces the option for Member States to provide for priority connection or reserved connection capacity for new electricity-generating installations using RES[13] and (ii) allows Member States to require TSOs and DSOs to bear, in full or in part, the costs related to RES-e generators' connection and integration, including costs of 'technical adaptations, such as grid connections and reinforcements, improved operation of the grid and rules on the non-discriminatory implementation of the grid codes'.[14] Notably, 'connection' and 'access' to the grid have different meanings in EU law. According to the Court of Justice of the European Union, 'connection' to the grid is related to the physical connection of the electricity generator to the grid, whereas 'access' to the grid is related to the terms and conditions of supply of electricity.[15]

The extent to which priority measures are implemented in the Member States of the EU varies widely, from many perspectives. Most of the Member States have different connection charge regimes as well as different distribution cost regimes.[16] Many EU Member States apply non-discriminatory treatment in terms of the connection of RE electricity generators, but give preferential access and dispatch terms to RE electricity generators. Some Member States give RE generators priority in terms of connection, access and dispatch of electricity on the grid. Others apply non-discriminatory treatment at the levels of connection, access and dispatch of electricity on the grid, irrespective of the technology used for the generation of electricity (except for feed-in tariffs or related schemes, which *de facto* ensure priority for renewables).[17]

For instance, France and Sweden do not give priority to RE-sourced electricity in terms of either connection or dispatch. Ireland reserves connection capacity for RES-e. Belgium and Spain give priority to RE electricity generators for connection, access and dispatch. The United Kingdom provides guaranteed access for electricity produced from all

purchase contracts with TSOs (European Wind Energy Association, *EWEA Position Paper on Priority Dispatch of Wind Power*, p. 6).

[13] Recital 61 of the RES Directive. [14] Article 16(3) and 16(4) of the RES Directive.

[15] Case C-239/07, *Sabatauskas and Others*, Court of Justice of the European Union, judgment of 9 October 2008, paras. 36–44.

[16] Ibid. [17] Ibid.

types of generators, whereas Germany requires the grid operator to connect RE electricity generators first and to ensure that they are given priority access.[18] In 2013, of sixteen states that took part in a survey by the Council of European Energy Regulators, (i) seven of them had different connection charge regimes for RES-e plants than for conventional plants; (ii) one had a different access charge regime for RES-e plants; (iii) five had imposed a 'deep' connection charges model and (iv) five had imposed a 'shallow' connection charges model.[19]

II Priority Rules in the EE Directive

Directive 2012/27/EU on energy efficiency (EE Directive) also allows the provision of preferential treatment to RE at the stages of connection, access and dispatch of electricity on the grid. The EE Directive establishes a framework for the promotion of energy efficiency within the EU at all stages of the energy chain and aims to remove barriers and overcome market failures by addressing the rules relating to transmission, distribution,

[18] RES LEGAL Europe Database, *Legal Sources on Renewable Energy* (2012), www.res-legal.eu/compare-grid-issues/ (accessed 10 October 2014). Also see Council of European Energy Regulators, *Status Review of Renewable and Energy Efficiency Support Schemes in Europe* (2013), www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Electricity/Tab2/C12-SDE-33-03_RES%20SR_25%20June%202013%20revised%20publication_0.pdf (accessed 16 November 2015).

[19] Notably, depending on the connection to the grid cost components, different connection charging models are categorised into the 'deep connection cost charging model', 'shallow connection cost charging model' or 'deep', 'semi-deep', 'semi-shallow' and 'shallow' models. A 'deep' connection cost charging model imposes upon the power station's developer several grid infrastructure-related costs, such as grid connection, grid reinforcement and extension. A 'shallow' connection cost charging model imposes upon the power station's developer only the costs of the connection to the grid, not the costs of reinforcement and extension. Combinations of the 'deep' and 'shallow' connection models are categorised as 'semi-deep' or 'semi-shallow' (for further information see Council of European Energy Regulators, *Status Review of Renewable and Energy Efficiency Support Schemes in Europe in 2012 and 2013* (2015), pp. 32–6, www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/4154396/33476CB022773277E053C92FA8C0B7A8.pdf (accessed 13 November 2015). For instance, the RES LEGAL Europe Database provides that in the Netherlands, the costs of connection to the grid are borne by the plant operator. In Poland, the fee for connection of RES of no more than 5 MW is half of the fee calculated on the basis of the actual costs. Slovenia exempts RES electricity generators from payment for necessary electricity grid reinforcements resulting from their connection (see RES LEGAL Europe Database, *Legal Sources on Renewable Energy*).

access to and dispatch of electricity on the grid.[20] Similarly to the RES Directive, in the EE Directive implementation of grid-related incentives is made subject to the reliability and safety of the grid – notably, the EE Directive requires consideration to be given to the rules on transmission, distribution, access and dispatch, as set out in Directive 2009/72/EC concerning common rules for the internal market in electricity (Electricity Directive),[21] but without prejudice to the rules on connection, access and dispatch contained in the RES Directive.[22]

In particular, the EE Directive requires Member States to: (i) guarantee the transmission and distribution of electricity from high-efficiency cogeneration; (ii) provide priority or guaranteed access to the grid for electricity from high-efficiency cogeneration and (iii) provide priority dispatch of electricity from high-efficiency cogeneration insofar as the secure operation of the national electricity system permits.[23] In the context of application of priority rules, Article 15(5) of the EE Directive enables Member States to set rankings 'as between, and within different types of, renewable energy and high-efficiency cogeneration' and requires EU Members to ensure 'in any case . . . that priority access or dispatch for energy from variable renewable energy sources is not hampered'.[24]

Therefore, the question of non-discrimination within the framework of the EE Directive is even more complex when compared to the RES Directive. First, unlike the RES Directive, the EE Directive aims to ensure grid access priority not only to RE electricity generators, but also to some conventional combined heat-and-power technologies. Thus, the EE Directive raises the question of discrimination between RE-sourced electricity and conventional electricity. Second, it introduces the term 'variable renewable energy sources' and raises the question of discrimination between 'variable' and 'non-variable' RES. However, there is no legal definition of 'variable renewable energy sources' or 'non-variable renewable energy sources' at the EU level.[25] Third, promotion of 'variable' over 'non-variable' renewable sources may hamper 'non-variable' renewable sources, irrespective of any negative environmental or market effects.

[20] Article 15(5) of the EE Directive.
[21] Article 15 of the Electricity Directive.
[22] Article 16(2) of the EE Directive.
[23] Article 15(5)(a–c) of the EE Directive.
[24] Article 15(5) of the EE Directive.
[25] S. Reith, T. Kolbel and P. Schlagermann, *Legal Conditions for Grid Access* (Brussels: Geolec, 2012), pp. 12–14.

C Grid Operation Neutrality

There are several reasons why RE-sourced electricity should not *per se* be given special treatment at the stages of connection, access and dispatch of electricity on the grid. First, the requirement to feed in electricity produced from a specific source is not associated with any special characteristics of the electricity, but rather with the outcomes at the production stage. From a system operation point of view, some of the RES-e generators are comparable to conventional electricity generators. Second, at the stage of connection to the grid, some conventional electricity generators face the same challenges as renewable electricity-generating installations. Finally, renewables are granted priority by Member States regardless of the nature of challenges (technical or market) related to renewables integration in the electricity systems. Priority rules are implemented regardless of alternative means to integrate renewables through certain market arrangements.

I System Operation Objectives and Preferential Treatment of RES-e Generators

Electricity demand and electricity systems reserves change continually. Therefore, the central task of the system operators is to match production with consumption. This task is performed through dispatching, which entails the central coordination of producers and large consumers. Coordination of electricity systems is typically carried out with due regard to the use of interconnectors.[26]

In light of the objective to match electricity supply with demand, the elimination of obstacles related to RE connection and integration through the introduction of priority rules is arguably excessive and unjustifiable from the standpoint of transmission and distribution systems operation. A number of reasons should be outlined here besides the fact that RE connection and integration can be facilitated with grid adaptation and market arrangements.[27] First, some renewable electricity-generating technologies are comparable with conventional electricity-

[26] B. Barton, L. K. Barrera-Hernandez, A. R. Lucas and A. Ronne, *Regulating Energy and Natural Resources* (Oxford: Oxford University Press, 2006), p. 174.

[27] See for instance European Network of Transmission System Operators for Electricity, *Developing Balancing Systems to Facilitate the Achievement of Renewable Energy Goals* (2011), www.entsoe.eu/fileadmin/user_upload/_library/position_papers/111104_RESBalancing_final.pdf (accessed 15 November 2015).

generating installations. RE comprises a heterogeneous class of technologies which, over differing time scales, can be variable and unpredictable, variable but predictable, constant or controllable.[28] Some of the RE electricity-generating technologies, therefore, have a similar ability to supply electricity as conventional electricity-generating technologies (i.e. gas turbines and solar; coal and biomass, solar thermal with storage).[29]

Second, implementation of priority rules is not directly related to market barriers specifically linked to RES connection and integration challenges. RE connection and integration barriers vary from one Member State to another and include issues related to connection costs, capacity limits, lack of transparency, public opposition, administrative inefficiency, capacity speculation and lack of financial incentives.[30] Therefore, in some EU states introduction of priority rules will not necessarily contribute to the objectives of RE connection and integration. For instance, in the Netherlands, the challenges related to renewables integration are related to a lack of sufficient grid capacity; in Slovakia, barriers are related to capacity speculation and delays during the connection to the grid process; and in Portugal, the main challenges identified are related to complicated licensing procedures and environmental impact assessment.[31]

Furthermore, these and similar challenges are also pertinent to conventional electricity-generating installations. However, the EU rules do not require the establishment of a causal link between priority rules and market failures. Nor does the European Commission suggest phasing out the priority rules, irrespective of the circumstance that priority rules will not tackle the specific challenges related to RE-electricity generators' connection and integration in the grid.[32]

[28] Intergovernmental Panel on Climate Change, *Renewable Energy Sources and Climate Change Mitigation* (Cambridge: Cambridge University Press, 2012), p. 8.

[29] They may provide base load power (e.g. nuclear, coal versus biomass, solar thermal with storage, hydropower), intermediate load power (e.g. coal versus geothermal) or peak load power (e.g. gas turbines versus solar). See B. Harack, *How Can Renewables Deliver Dispatchable Power on Demand?*, www.visionofearth.org/industry/renewable-energy/renewable-energy-review/how-can-renewables-deliver-dispatchable-power-on-demand (accessed 10 October 2014).

[30] Reith, Kolbel and Schlagermann, *Legal Conditions for Grid Access*, pp. 12–14.

[31] Ibid.

[32] See European Commission, 'Communication from the Commission. Delivering the internal electricity market and making the most of public intervention', https://ec.europa.eu/energy/sites/ener/files/documents/com_2013_public_intervention_en_0.pdf

II Discrimination against Electricity-Generating Installations

The problem of discrimination against electricity-generating installations that was a paramount issue back in 2001 is no longer of such relevance since the 2009 adoption and implementation of the third package of legislative proposals for gas and electricity markets.

Neither in 1996 (when the first package for liberalisation of electricity and gas markets was introduced) nor in 2001 (when the first renewable energy directive was introduced) were there strong institutional mechanisms in place to coordinate and control electricity markets. Back then, electricity markets were dominated by vertically integrated undertakings. Rules for access to the grid at the Member State level were largely discriminatory from substantive and procedural points of view.[33] They provided much flexibility to system operators to decide which electricity-generating installations to connect first, and for which of them to ensure access and dispatch of electricity on the grid.[34]

The liberalisation of the electricity sector demonstrates that electricity generation and supply can be legally, conceptually and commercially separated from the operation of transmission and distribution systems, and that discrimination against different electricity-generating installations can be tackled through a number of regulatory means (notably, if renewables are provided non-discriminatory access to the grid, their low operating costs will place them before conventional power producers in the dispatch merit order).[35]

(accessed 10 November 2015). Notably, the European Commission states that 'rules for the responsibility for grid balancing, priority dispatching and financial responsibility for network development . . . with the development of the open and competitive electricity markets . . . may lose their justification once the internal electricity market is completed'. However, grid connection, access and priority dispatch regulatory tools are still widely used in EU states that promote RE electricity, irrespective of the fact that EU Members have fully implemented measures that effectively tackle with discrimination of electricity generators at the stages of connection, access and dispatch of electricity on the grid.

[33] See K. Gudas, 'Intersection of WTO and EU law in international electricity trade: analysis of the regulatory environment for electricity systems development', PhD thesis (2017), University of Bern.

[34] Ibid.

[35] The European Commission itself notes that 'when renewables producers have equal access to the market, their low operating costs (particularly for wind and solar power production) place them before conventional power producers in the merit order. As such, systems with centralised dispatch fade and priority dispatch rules become less relevant for renewable energy technologies active in the market'. See European Commission, 'Communication from the Commission. Delivering the internal electricity market and making the most of public intervention'.

For a long time, the European Commission argued that new generators' connection and integration in the electricity markets was hampered mainly by vertically integrated companies. Unbundling was therefore designed to eliminate the dominance of the vertically integrated utilities and to create an open and transparent market with non-discriminatory access to electricity networks. Unbundling transmission and distribution from electricity generation and supply has essentially removed the conflict of interest between generators (suppliers) and the operators of transmission systems in most EU Member States.[36] As a result, the transmission system operators were separated from the vertically integrated companies acting in the areas of generation and supply and the operators of distribution systems were granted a high degree of independence, regardless of whether or not a particular distribution system operator has remained part of a vertically integrated company.[37]

Second, the regulatory third-party access regime introduced in 2009 with the Electricity Directive restricted the denial of access to the grid only to situations in which the respective system operator lacks the necessary capacity. If access is denied, Article 32(2) of the Electricity Directive requires the provision of reasons duly substantiated by the respective transmission system operator or distribution system operator and based on objective and technically and economically justified criteria.[38] Therefore, if an RE electricity generator is denied access on discriminatory grounds, it is provided regulatory means to defend its commercial interests.

Third, the Electricity Directive imposes on Member States a requirement to establish competent bodies with the function of regulatory authorities, independent from the interests of the electricity industry. The regulatory authorities are assigned the tasks of both market monitoring and market regulation. They also have the power, if necessary, to compel TSOs to modify their terms and conditions. Therefore, if TSOs create discriminatory obstacles that prevent connection, access and dispatch of electricity on the grid, the national independent regulatory authorities may require them to modify these rules and eliminate the barriers.[39]

[36] See European Commission (2011), 'The entry into force of the EU third energy package', www.learneurope.eu/files/7113/7483/5945/Third_energy_package_en.pdf (accessed 10 October 2014).
[37] Articles 24–26 of the Electricity Directive.
[38] Article 32(2) of the Electricity Directive.
[39] Article 36(e) of the Electricity Directive.

Fourth, the EU's general non-discrimination rules and the competition laws established under the Treaty on the Functioning of the European Union restrict the transmission system operators and distribution system operators from abusing their dominant position.[40] Introduction of the network codes in the EU will further implement the non-discrimination principle and mitigate any risks related to discrimination against electricity generators at the stages of connection, access to and use of electricity grids.[41] Network codes will, to some extent, harmonise connection to the grid and market rules.[42]

D Concluding Remarks

While grid-related incentives may indeed have the potential to increase the amount of RES in the electricity sector, it is evident that from an economic, technical and legal point of view, these measures may have negative side effects for trade and the operation of electricity systems.

The priority rules may be applied by Member States irrespective of the lack of a causal link between the objectives of the measures and their effects, or the availability of less trade-restrictive measures. The promotion of RE through grid-related incentives does not necessarily ensure a contribution to climate change mitigation. Grid-related incentives may create unplanned power flows that limit cross-border transmission capacity, undermining the economy of conventional power generators as well as leading to their unexpected shutdown.

Instead of priority rules, the regulation of connection to the grid and operation of the grid should be subject to rules aimed at ensuring neutrality across technologies through grid adaptation and market

[40] Violation of the EU's competition rules may result in a fine of up to 10 per cent of total annual income. See further on third-party access and competition rules, A. Kotlowski, 'Third-party access rights in the energy sector: a competition law perspective', *Utilities Law Review*, 16(3) (2007), 102–18.

[41] See Gudas, 'Intersection of WTO and EU law'.

[42] Also, the European Commission encourages Member States to ensure that national rules which are not harmonised are non-discriminatory across technologies and calls for further harmonisation of market rules with the idea to allow all producers to participate in the intraday, balancing and ancillary services markets. See European Commission, 'Communication from the Commission: Delivering the internal electricity market and making the most of public intervention'.

arrangements. Several reasons justify this approach. First, some conventional and renewable electricity-generating technologies are comparable from the system operation point of view. Second, the major obstacles to RE connection and integration can be addressed through institutional control, implementation of a regulated third-party access regime and other legal remedies available under EU law.